

DOCUMENT RESUME

ED 230 596

TM 830 385

TITLE National Assessment of Educational Progress.  
 INSTITUTION Education Commission of the States, Denver, Colo.  
 National Assessment of Educational Progress.  
 SPONS AGENCY National Inst. of Education (ED), Washington, DC.  
 PUB DATE [83]  
 GRANT NIE-G-80-0003  
 NOTE 28p.  
 AVAILABLE FROM National Assessment of Educational Progress, 1860  
 Lincoln Street, Denver, CO 80295  
 PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.  
 DESCRIPTORS \*Academic Achievement; Cost Estimates; Data Analysis;  
 Data Collection; \*Educational Assessment;  
 \*Educational Trends; \*Federal Programs; \*Program  
 Descriptions; Research Methodology  
 IDENTIFIERS \*National Assessment of Educational Progress

ABSTRACT

This brochure describes the mission of National Assessment, the highlights of recent findings, and the procedures used in gathering the data. It also outlines how the project is administered and governed and projects a framework for the development of upcoming assessments. The booklet includes a number of charts and graphs depicting achievement trends, dissemination of materials, and costs. Primary type of information provided by report: Program Description (Program Goals) (Progress Reports). (Author)

\*\*\*\*\*  
 \* Reproductions supplied by EDRS are the best that can be made \*  
 \* from the original document. \*  
 \*\*\*\*\*

ED230596

# National Assessment of Educational Progress

U.S. DEPARTMENT OF EDUCATION  
NATIONAL INSTITUTE OF EDUCATION  
EDUCATIONAL RESOURCES INFORMATION  
CENTER (ERIC)

- ✖ This document has been reproduced as received from the person or organization originating it. Minor changes have been made to improve reproduction quality.
- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

T. Pratt

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."



7M 830 385

## Contents

Preface .....	1	National Assessment Staff and Administration .....	17
Mission of the National Assessment .....	4	Assessment Policy Committee ..	19
Highlights of Assessment Findings .....	5	Policy Committee Consultants ..	21
Achievements and Events .....	11	Representatives of Principals' Organizations .....	21
Products and Dissemination ..	11	Analysis Advisory Committee ..	22
Publications .....	13	Exercise Development Advisory Committee .....	23
Data Collection and Analysis .....	14		
Assessment Development ..	15		



Administered by the  
Education Commission of the States  
1860 Lincoln Street, Suite 700  
Denver, Colorado 80295  
(303) 830-3600



Pushed by the rapid emergence and expansion of the communications technologies, America is changing from an industrial-based to an information-based nation from a centralized to a decentralized society and from a national to a global economy. Our financial and industrial institutions are being forced by the exploding electronic technology and changing relationships with other nations to reexamine their methods of operating. Business as usual is no longer the order of the day. These same forces, combined with declining resources and student enrollments, are profoundly affecting our education system as it struggles to restructure to meet the needs of a changing society. New and more cost-effective delivery systems, ways of learning, training programs and assessment and evaluation techniques must be found to better prepare today's students to meet the scientific and technical challenges of the future.

These events suggest how important it is to gather national data about educational achievement and to monitor changes in that achievement over the years. Since 1969, the National Assessment of Educational Progress (NAEP) has been responsible for that monitoring. The information NAEP has gathered offers all who are interested in education an unprecedented opportunity to examine achievement in 10 learning areas, to detect changes in level of achievement over the years and to apply the implications of those

changes to local and national educational policy.

The National Assessment has proven useful to many different audiences. Its data are integral to reports of the National Institute of Education on the status of education; 37 states have drawn upon the assessment materials or methodology in establishing their own assessment programs; assessment data have been used to document educational inequities and secure funds for their remediation; professional educators have interpreted the results and discussed their implications for curriculum, textbooks and classroom practice; and countless districts, schools and individuals have used National Assessment objectives as a starting point for the creation of personal or local teaching objectives and assessment instruments.

To continue as a useful national report card on the progress of American education, National Assessment, too, must respond to the changing needs of education and the nation. During its formative years, NAEP devoted most of its resources gathering baseline information on the education accomplishments of the nation's youth and developing and standard-

## *Preface*

izing assessment procedures. Much attention was paid to extending the breadth and quality of the data collection, analysis and reporting. After 13 years of establishing political, technical and methodological credibility, NAEP has evolved steadily from an idea into one of the most sophisticated and comprehensive educational measurement programs in the world. Under the administration of the Education Commission of the States (ECS) it has:

- Pioneered objectives-referenced, large scale assessment technology
- Developed a comprehensive data base describing the skills, knowledge and attitudes of American students in a wide range of learning areas
- Pioneered the measurement and analysis of changes in education performance
- Significantly influenced the development of state and local assessment programs that have in turn, expanded the data base for monitoring outcomes of education programs across the country
- Pioneered methods of measuring complex skills in reading, writing, mathematics, art, citizenship, science and other areas

- Contributed unique information about critical social issues such as the performance of disadvantaged youngsters, racial/ethnic groups and language minorities.
- Clarified education trends by describing detailed changes in higher- and lower-ordered (or "basic") skills
- Linked performance data to future issues, such as the emergent high technology economy

National Assessment is now mature. Its massive data base on student achievement is a national treasure. As the description of student achievement has become clearer, it has now become possible to focus on the utility of the data, to expand the program's technical services to states and others, to collaborate in various kinds of research efforts and to serve as a consultant and resource for the education community.

Indeed, 1982 has been a year of looking ahead for staff and others involved with the program. Two reviews of National Assessment (*Measuring the Quality of Education*, Wirtz and Lapointe, 1981; *On the Uses of the National Assessment of Educational*

Progress Sebring and Boruch, 1982) and the reevaluation of NAEP through the competitive award process have provided staff the National Institute of Education and the education community a relatively rare opportunity to step back, assess the state of education in the nation and consider the future directions of National Assessment in improving education for all of our students.

Those determining the road a mature NAEP will take should consider the past, the present and the future. We believe that the continued success of the National Assessment will ultimately be measured not only by the volume of data collected and the

number of reports published, but also by the quality of services it provides to those individuals who are responsible for improving education opportunities and quality.

**Robert Andringa**

*Executive Director  
Education Commission of the  
States*

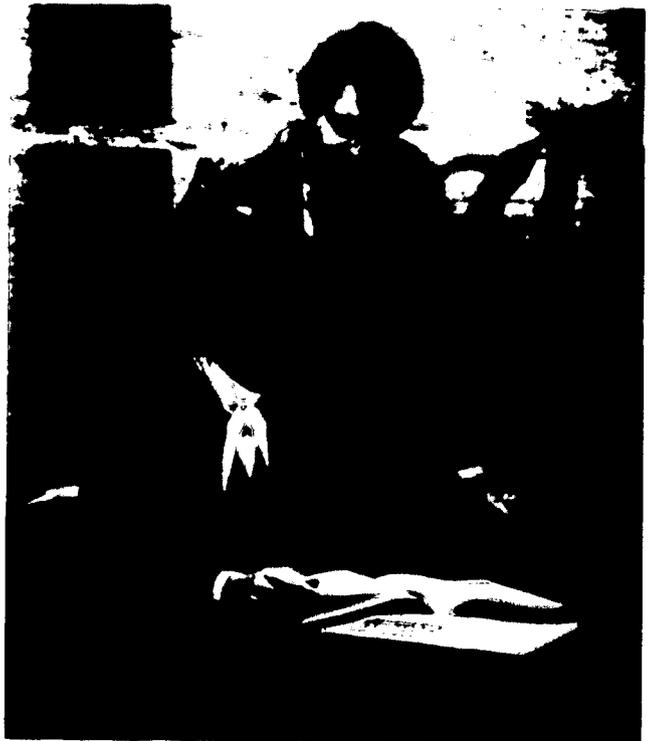
**Beverly Anderson**

*Director  
National Assessment of  
Educational Progress*

**Philip Swain**

*Chairperson  
Assessment Policy Committee*

*Beverly Anderson, director of the National Assessment of Educational Progress, and Robert Andringa, executive director, Education Commission of the States, examine NAEP Findings.*



# Mission of the National Assessment

The National Assessment of Educational Progress is the first effort to improve education by providing continual, comprehensive and dependable national achievement data. Section 405 (k) of the General Education Provisions Act (20 USC 1221e) describes the National Assessment mission in this way:

A National Assessment shall collect and report at least once every five years data assessing the performance of students at various age or grade levels in each of the areas of reading, writing and mathematics; report periodically data on changes in knowledge and skills of such students over a period of time; conduct special assessments of other educational areas as the need for additional national information arises; and provide technical assistance to state educational agencies and to local education agencies on the use of National Assessment objectives, primarily pertaining to the basic skills of reading, mathematics and communication, and on making comparisons of such assessments with the national profile and change data developed by the National Assessment.

In pursuing this mission, National Assessment:

- Collects and reports data on short- and long-term trends and patterns in the education attainments of young Americans
- Conducts special and other studies to support curriculum planning and policy development
- Publishes assessment objectives, exercises, methodological studies, policy papers and other helpful materials for a variety of audiences
- Provides technical assistance to state and local education agencies
- Produces public-use data tapes for secondary research and analysis
- Interacts regularly with state and local education agencies, Congress, federal agencies, business and industry, national associations and other groups to place NAEP information in an appropriate context for action



## Highlights of Assessment Findings

Many assessment findings published by the National Assessment in 1982 shed new light on performance patterns of grade, junior high and senior high school students and on performance differences between various groups of students.

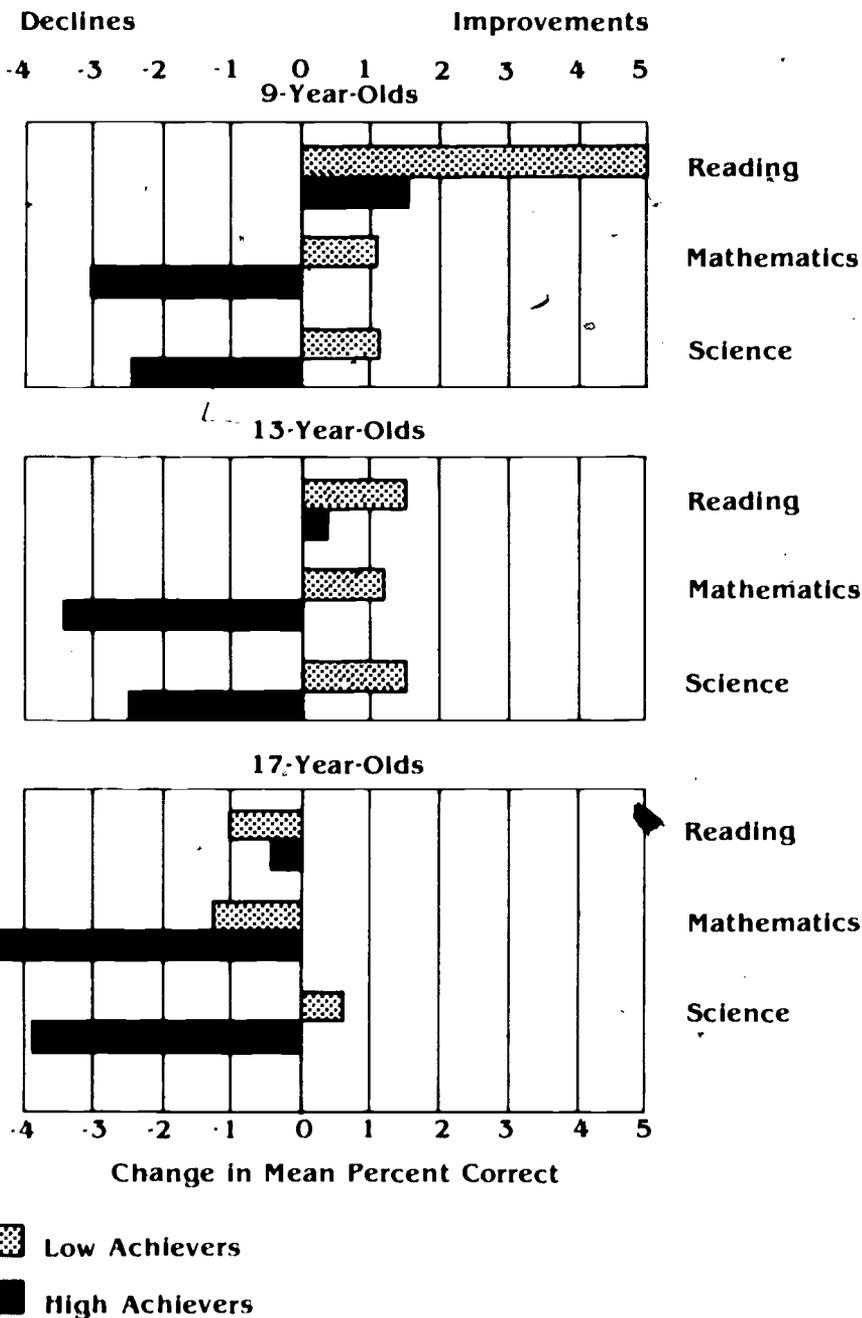
Previously published NAEP reports showed that during the 1970s, the overall picture for reading performance was different than that observed for science and mathematics. Generally the reading performance of American youth improved for young students while teenagers tended to hold their ground.

Mathematical performance of 13- and 17-year-old students declined during the 1970s, while 9-year-olds performed at nearly the same level from one assessment period to the next. Science performance, however, stayed at about the same level for 9- and 13-year-olds and dropped for 17-year-olds.

*Reading, Science and Mathematics Trends. A Closer Look* examined assessment data from a somewhat different perspective: student performance was arrayed in quartiles of achievement and analyzed by age as well as by modal grade. (The modal grade for 9-year-olds is 4th grade; for 13-year-olds, 8th; and for 17-year-olds, 11th.) A sharper image emerged of where performance changes had occurred during the 1970s and of which student groups realized performance gains and losses.

- Overall, students in the lowest performance quartiles (low achievers) realized greater gains than did those in the highest performance quartiles (high achievers). Among both high and low achievers, black students were more likely than white students to show gains, although overall performance of blacks remained below that of whites.
- In reading, both low and high achievers at age 9 improved significantly, low achievers by 5 percentage points and high achievers by 1.4 percentage points. Among 13-year-olds, less able students improved their performance by 1.4 percentage points, while academically adept junior high students showed no change. Neither high nor low achievers at the senior high level showed any significant changes in their reading skills.
- Mathematics and science performance of students in the bottom quartile did not change, with the encouraging exception of 13-year-olds, who improved by 1.5 percentage points in science. However, the mathematics and science skills of high achievers at all three ages declined, dropping by 2.5 to 4.3 percentage points.
- Both white and black 17-year-olds in the 11th grade and in the highest quartile suffered substantial losses in mathematics and science.

**Changes in Reading, Mathematics and Science Performance of Low and High Achievers During the 1970s\***



\*Reading assessments were conducted in 1975 and 1980; mathematics assessments in 1973 and 1978; science assessments in 1973 and 1977.

*Reading Comprehension of American Youth: Do they Understand What They Read?* completed a series describing the results of the 1979-80 reading and literature assessment. Devoted to results about students' abilities to comprehend written works and to apply study skills in reading, this report also included findings about students' perceptions of reading and their habits and experiences with reading. Here are some of those findings.

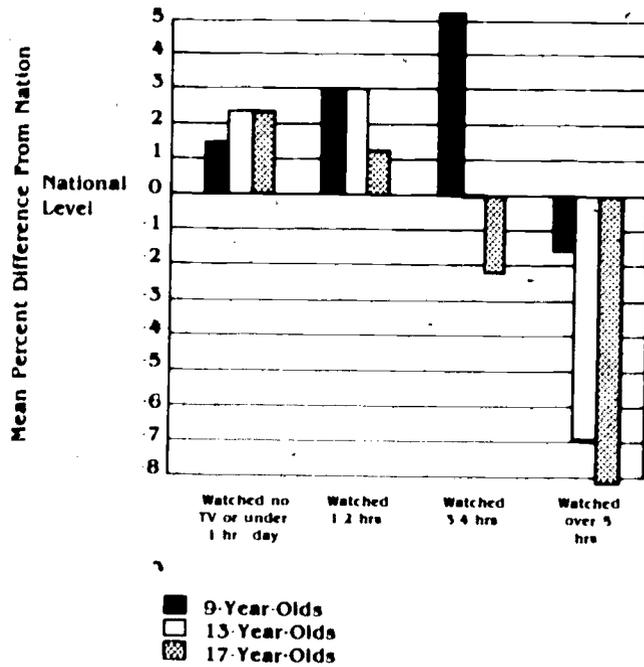
- At all ages, students who read almost every day performed higher on the reading comprehension exercises than those who reported less frequent spare time reading. However, the percentages of students who reported almost daily reading decreased with age - 54% at age 9, 35% at age 13 and 33% at age 17.
- At all ages, females performed above and males performed below the national levels of performance; females also tended to read more frequently than males in their spare time. However, performance tended to be more similar for males and females who read the same amount in their spare time than for males and females generally.
- White students performed above the nation and black and Hispanic students performed below the nation at each age. However, at each age, black students who attend schools in

advantaged-urban communities performed closer to national levels of performance than black students who attend schools in rural or in disadvantaged-urban communities.

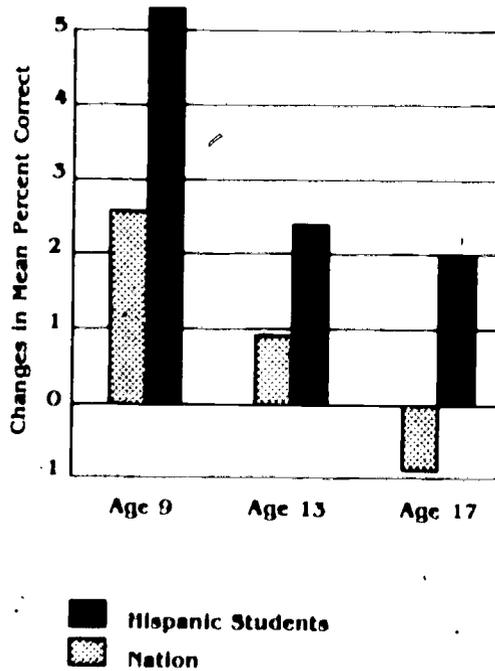


- At age 9, more time spent watching television tended to be positively associated with achievement, except for the heaviest watchers (five hours or more). At age 13, performance increased with amount of television viewing up to the point of one to two hours, then decreased. At age 17, performance decreased with amount of television watched.
- At ages 13 and 17, increased time spent on homework tended to be associated with higher performance on the reading comprehension exercises.

**Reading Com-  
prehension of  
Students Related  
to Television  
Viewing**



**Changes in  
Reading Perform-  
ance for Hispanic  
Students and the  
Nation Between  
1975 and 1980**



*Performance of Hispanic Students In Two National Assessments of Reading* shows that although Hispanic students reading performance remains below the national level they have made some significant gains in reading from 1974 to 1980. Moreover the performance gains among Hispanic youngsters at age 9 and among several groups of Hispanic students at ages 13 and 17 exceed those of students nationally in certain areas of reading performance. For instance:

- The performance of 9 year old Hispanics improved 5.3% compared with a 2.6% improvement for all 9 year olds.
- Improvement at age 9 was greatest (5.9%) on exercises assessing literal comprehension.
- Nine year old Hispanics attending schools in cities of 200,000 or more improved 8.4 percentage points.
- Thirteen year old Hispanics performance stayed about the same between 1974 and 1979 big city 13 year old Hispanics improved their performance on literal comprehension exercises by 5.9 points.
- Seventeen year old Hispanics performance also stayed about the same between assessments. Again big city students showed an improvement this time in exercises assessing inferential comprehension.

- At all three ages, Hispanics in the modal grade performed better than those below modal grade and improved their performance at a faster rate.

*Students From Homes In Which English Is Not the Dominant Language: Who Are They and How Well Do They Read?* contributes to the national need for information about a significant number of students: the bilingual and multilingual, a sometimes forgotten group of youngsters.

- Students from homes in which a language other than English is often spoken (OL students) generally performed below students for whom English is the dominant language (EL students) on the 1979-80 national reading assessment.
- Language dominance has different effects for people in different schools and socioeconomic strata. In general, OL students attending advantaged-urban and private schools, those coming from homes with many reading resources and (except at age 9) those who have a parent with post-high school education performed near at or above national levels. OL students attending disadvantaged-urban schools, those coming from homes with few reading resources and those whose parents have not completed high school performed considerably below their more advantaged peers.

- Language dominance has different effects for people of different ethnic/cultural backgrounds. White OL 17-year-olds performed about a percentage point below the nation and 5 percentage points below white students for whom English is the dominant language. Hispanic OL 17-year-olds performed 9 percentage points below the nation, just as Hispanic EL students did.
- Over two-thirds of the 17-year-old other-language-dominant students live in the Western or Northeastern region of the country. Nine- and 13-year-olds from other-language homes are more evenly dispersed around the country although they are

still more heavily concentrated in the West.

- While many other-language-dominant students are Hispanics, they are by no means the only OL students in the schools, and Spanish is by no means the only language spoken by OL students.



## Achievements and Events

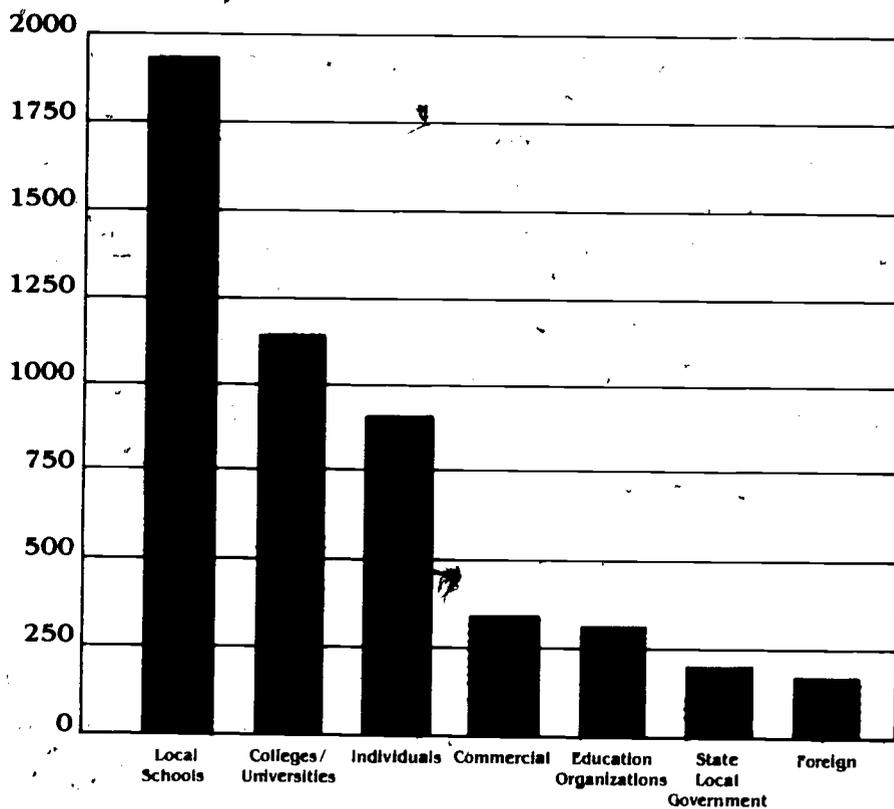
National Assessment's many audiences include the general public, state policy makers and program implementors, business and industry leaders, curriculum groups, researchers, testing and assessment personnel and practitioners. To help these audiences improve education, National Assessment produces many products to make its findings, methods and materials readily available: the periodic *NAEP Newsletter*, special reports and papers tailored for specific groups—major reports on each assessment, data tapes, summary leaflets, learning area objectives, sets of exercises released to the public and technical assistance. These are disseminated through: the Education Commission of the States Distribution Center, the Superintendent of Documents, the U.S. Government Printing Office, the Educational Resources Information Center (ERIC) and its clearinghouse system, the Library of Congress, news media and Congressional briefings, listings in directories, articles in education journals, workshops and staff presentations. In 1982

- 36,000 publications were disseminated in response to requests for information
- Over 1,000 staff responses were made to education institutions and organizations, members of Congress and Congressional committees, news media, business firms, community organizations, private citizens and students.
- 3 *NAEP Newsletters* were disseminated to over 36,000 individuals and institutions
- 6 states—Connecticut, Maine, Michigan, Minnesota, Pennsylvania and Wyoming—were provided direct technical assistance
- 7 new public-use data tapes were produced, bringing the total to 32
- 202 public-use data tapes were disseminated to researchers, principally at colleges and universities
- 31 presentations were given by staff to national, state and local education organizations

## Products and Dissemination



**Number of Information Requests  
for NAEP  
Materials, 1982**



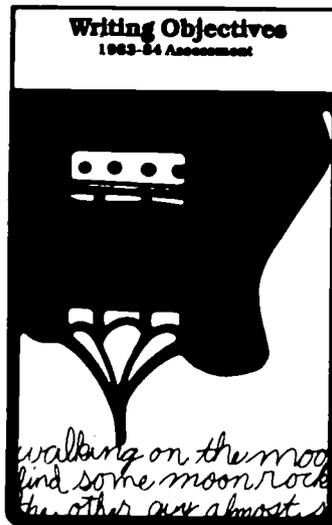
Note: This tally does not include the heavy volume of telephone inquiries, reports provided to schools participating in the assessment or reports provided for news releases.

During 1982, the following publications were produced:

- *Reading Comprehension of American Youth: Do They Understand What They Read?*
- *Performance of Hispanic Students in Two National Assessments of Reading*
- *Students From Homes in Which English Is Not the Dominant Language: Who Are They and How Well Do They Read?*
- *Achievement and the Three Rs: A Synopsis of National Assessment Findings in Reading, Writing and Mathematics*
- *A Closer Look at School Cutoff Dates and Achievement*
- *Reading, Science and Mathematics Achievement: A Closer Look*
- *Technical Report: Changes in Student Performance by Achievement Class and Modal Grade*

- *Standards and National Assessment: Synthesis of Seven Educators' Responses to Questions About the National Assessment's Role Relative to Raising Education Standards*
- *National Assessment Findings and Educational Policy Questions*
- *How Have You Used National Assessment Materials? . . . Responses From Six Educators*
- *Writing Objectives, 1983-84 Assessment*
- Leaflets summarizing various results, reports and microfiche to augment public-use data tapes for science, mathematics, reading and other areas

## Publications



## **Data Collection and Analysis**

Surveys of students' performance in mathematics and citizenship/social studies were completed in May of 1982. Representing the third assessment of these learning areas, the surveys will reveal changes in performance during the 1970s.

The mathematics survey provides coverage of knowledge, skill, understanding and applications in such content areas as: numbers and numeration; variables and relationships; shape, size and position (geometry); measurement, probability and statistics; technology; and attitudes toward mathematics. The citizenship/social studies survey provides measures of student achievement

levels based on five broad goals: acquiring information; using information; interacting with others; understanding ways human beings adapt to, organize and change their environments; and understanding the history and development of the United States. The first report on results of the third mathematics assessment will be released in April 1983. Release of citizenship/social studies findings is planned for November 1983.



In 1983-84 National Assessment will initiate interdisciplinary assessments that measure communication skills, thinking skills and development of basic knowledge across interrelated subject areas. Activities related to the 1983-84 assessment focusing on reading and writing and their application across the curriculum are well underway. The 1985-86 assessment will cover mathematics, science and technology. Four reasons underlie the move to integrated assessments:

1. Communications skills (reading, writing, speaking, listening) are integral to learning and using knowledge in any subject area.
2. Mastery in every subject area requires learning the problem-solving and thinking skills.

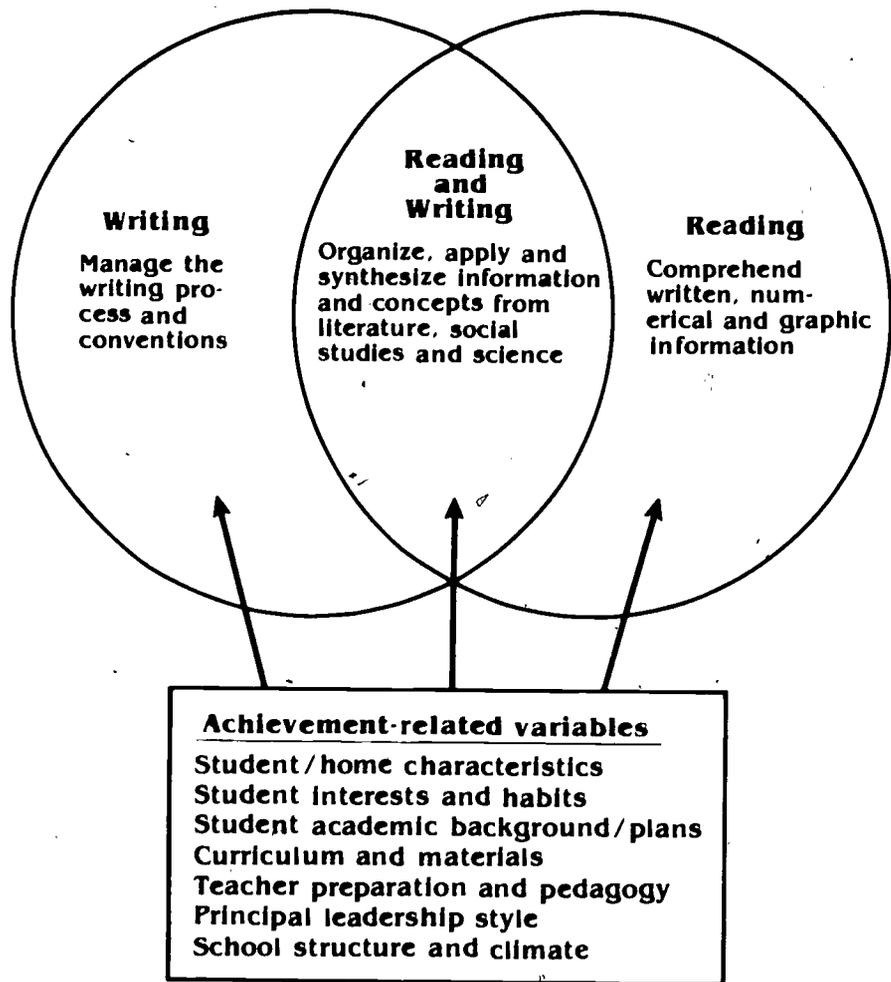
3. There is high public and professional interest in topics that span subject areas, e.g., literacy (reading, writing), technological skills (mathematics, science and computer literacy) and higher-order thinking and reasoning skills.
4. The assessments will enhance subject area findings, multiply potential analyses and address policy issues that transcend particular subject areas.

What will such assessments look like? The following chart presents an overview of the 1983-84 assessment, simplifying what is, in fact, a massive and complex undertaking.

## **Assessment Development**



**Framework for  
Development of  
the 1983-84  
Assessment  
(Reading and  
Writing Across  
the Curriculum)**



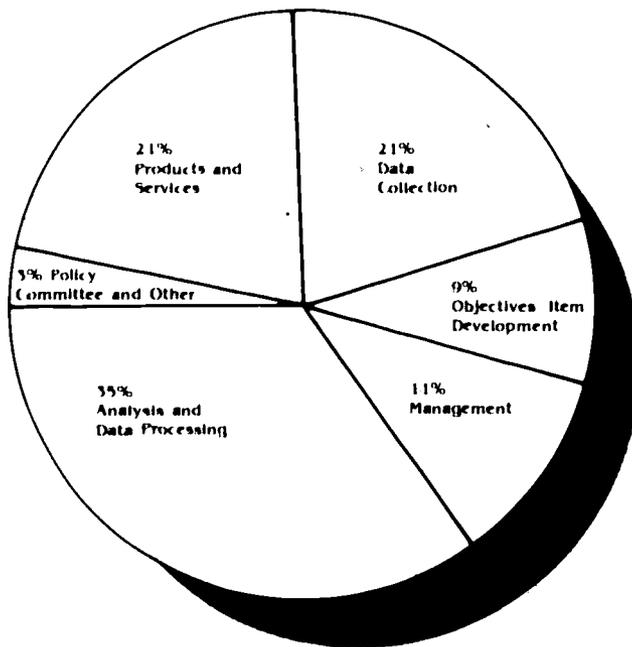
# National Assessment Staff and Administration

The National Assessment of Educational Progress is administered by the Education Commission of the States (ECS). ECS is a compact of 48 states and three territories and provides service to state political and education leaders to improve the quality of education at all levels.

As of December 31, 1982, the NAEP staff totaled 51, including 45 full-time and 6 part-time staff. Of the full-time staff, 14 were male and 31 were female. Sixteen percent of the staff were minorities. Most professional staff members have experience in education measurement and research, program evaluation, curriculum and instruction, statistics, teaching and/or administration.

The NAEP staff is responsible for overall project management, assessment development, data collection, analysis, information processing, and utilization and dissemination of results and methods. The staff is assisted by Research Triangle Institute personnel, responsible for sampling and field administration, and Westinghouse Information Systems personnel, responsible for printing and scoring of the assessment instruments.

Staff receive technical assistance from various learning area advisory groups. In addition, two major committees advise staff on analysis and development procedures: the Analysis Advisory Committee and the Exercise Development Advisory Committee.



*Distribution of National Assessment Resources by Expenditure Category, 1982*

**Statement of  
Revenues,  
Unliquidated  
Obligations,  
Commitments and  
Unobligated  
Funds for Fiscal  
Year 1982  
(January 1—  
December 31,  
1982)\***

**Revenues**

FY-81 unliquidated obligations	\$494,404
APC carryforward	21,341
NOICC carryforward	53,636
Secondary research carryforward	17,607
NAEP grant (revision #5)	425,000
NAEP grant (revision #6)	3,455,000
ECS cost sharing	40,405
Publications revenue	48,520
NAEP grant (revision #8)	284,794
Total	\$4,840,707

**Expenditures**

Personnel compensation	\$1,603,713
Transportation	180,192
Meetings	6,089
Rent and utilities	208,777
Printing and duplication	107,365
Communications	63,640
Subcontracts	1,332,985
Supplies and expenses	130,210
Indirect cost	578,800
Capital expense	141,706
Total	\$4,353,477

Unliquidated obligations and commitments	\$238,045
Unobligated funds**	249,185
Grand Total	\$4,840,707

\*Subject to change when FY1982 transactions and audit adjustments are completed.

\*\*Includes the following funds carried forward for FY1983 activities:

Assessment Policy Committee	\$13,913
Research Triangle Institute	21,400
Public use data tapes	194,885
Miscellaneous	18,987

# Assessment Policy Committee

The Assessment Policy Committee is charged by law with the overall responsibility for the design and conduct of National Assessment. In addition to its policy-making responsibilities, the committee reviews and approves the Assessment's internal budget allocations and its annual budget requests to the National Institute of Education (NIE).

The committee consists of 19 members, 17 of whom are appointed by the Education Commission of the States with the advice and consent of education, business, political and lay organizations. The director of NIE is a voting ex officio member of the committee. A member of the National Council on Educational Research (NCER), NIE's governing body, serves as a nonvoting ex officio member of the committee. Four nonvoting consultants, highly respected in the education and statistical communities, are appointed by the committee to advise and assist in deliberations of education and statistical matters. On elementary and secondary school matters, the APC is assisted by representatives from the National Association of Elementary School Principals and the National Association of Secondary School Principals.

The full committee meets three times a year. The meetings are open to the public, and the date and agenda for each meeting are announced in Federal Register and in various education publi-

cations. Minutes of the meetings are available from the NAEP offices. The committee is currently composed of the following individuals:

Phillip Swain, Chairperson  
Past Director  
Educational Relations,  
Training and Development  
The Boeing Company  
Seattle, Washington

June Gabler, Vice Chairperson  
Superintendent  
Woodhaven School District  
Romulus, Michigan

V. Jon Bentz  
Director  
Psychological Research  
and Services  
Sears, Roebuck Corporation  
Chicago, Illinois

Marettia Blackburn  
Teacher  
Constable School  
Kendall Park, New Jersey

Clarence Blount  
State Senator  
Baltimore, Maryland

Gilbert Bursley  
President  
Cleary College  
Ypsilanti, Michigan

Wilmer Cody  
Superintendent  
Birmingham City Schools  
Birmingham, Alabama

**Assessment  
Policy  
Committee  
(Continued)**

Mary Futrell  
Secretary-Treasurer  
National Education Association  
Washington, D.C.

James Habiger  
Executive Director  
Minnesota Catholic Conference  
St. Paul, Minnesota

John Hershey  
President  
Pennsylvania Board of  
Education  
Harrisburg, Pennsylvania

Barbara Klein  
Director  
National School Boards  
Association  
Forest Grove, Oregon

Gerald Koch  
State Senator  
Lincoln, Nebraska

Trudi Odbert  
Teacher  
Henry M. Gunn High School  
Palo Alto, California

Albert Quie  
Governor  
St. Paul, Minnesota

Joe Romero\*  
Past President  
New Mexico Board of Education  
Española, New Mexico

\*Term expired September 1, 1982

Charlotte Ryan  
Past President  
Massachusetts Parent-Teacher-  
Student Association  
North Orange, Massachusetts

Lynn Simons  
Superintendent of Instruction  
Cheyenne, Wyoming

Robert Sweet  
Acting Director  
National Institute of Education  
Washington, D.C.

Walter Tice  
Vice President  
American Federation of Teachers  
Yonkers, New York

Note: NIE member to be appointed by  
the NIE Director



## ***Policy Committee Consultants***

---

George Brain  
Dean  
College of Education  
Washington State University  
Pullman Washington

Janet Dixon Elashoff  
Professor of Biomathematics  
University of California  
Los Angeles California

Jack Merwin  
Professor of Educational  
Psychology  
University of Minnesota  
St. Paul Minnesota

Ralph Tyler  
Senior Consultant  
Science Research Associates  
Chicago Illinois



*Mary Luttrell of SAE's  
Assessment Policy  
Committee shares views  
with Ralph Tyler, policy  
committee advisor and  
senior consultant  
Science Research  
Associates*

## ***Representatives of Principals' Organizations***

---

Bill Hambrick  
National Association of  
Elementary School Principals  
Casper Wyoming

James Keele  
National Association of  
Secondary School Principals  
Reston Virginia

## *Analysis Advisory Committee*

Janet Dixon Elashoff  
Chairperson  
Professor of Biomathematics  
University of California  
Los Angeles, California

Lloyd Bond  
Research Associate  
University of Pittsburgh  
Pittsburgh, Pennsylvania

David Brillinger  
Professor of Statistics  
University of California  
Berkeley, California

Lyle Jones  
Professor of Psychology  
University of North Carolina  
Chapel Hill, North Carolina

John Tukey  
Associate Executive Director  
Bell Laboratories, Inc.  
Murray Hill, New Jersey



# Exercise Development Advisory Committee

Jack C. Merwin Chairperson\*  
Professor of Educational  
Psychology  
University of Minnesota  
St. Paul Minnesota

Jason Millman  
Professor of Educational  
Methodology  
Cornell University  
Ithaca New York

Thomas Hoan  
Director  
Educational Testing Center  
University of Wisconsin  
Green Bay Wisconsin

\*Dr. Merwin resigned from the  
committee June 1982





The National Assessment of Educational Progress is funded by the National Institute of Education, under a grant to the Education Commission of the States. It is the policy of the Education Commission of the States to take affirmative action to prevent discrimination in its policies, programs and employment practices.



National Assessment  
of Educational Progress

The work upon which this publication is based was performed pursuant to Grant No. NIE-G-80-0003 of the National Institute of Education. It does not, however, necessarily reflect the views of that agency.



The National Institute  
of Education

